RESEARCH BRIEF

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Understanding Loss Cost Actions

Over the last several years, the workers compensation (WC) line of insurance has seen notable decreases in bureau premium levels as seen in **Exhibit I**, which include all states where the National Council on Compensation (NCCI) provides ratemaking services. The loss costs/rates underlying these decreases can serve as a starting point for insurers to use in developing workers compensation premium. The main driver of the decreases stems from declines in loss costs, defined as the portion of premium allocated to provide for indemnity and medical costs within the workers compensation system.

Due to the long-term trend of steady declines, many industry stakeholders have shown an increased interest in rate adequacy. This article describes factors that impact loss cost changes and provides a deeper dive into the relatively larger decreases observed in recent years. To date, we have no indications of significant concerns; however, NCCI remains vigilant in evaluating any early signs of shifts or changes to ensure they are accounted for in the ratemaking process.

KEY INSIGHTS

- When costs outpace wage inflation, loss cost increases are generally warranted to keep premium and losses in balance.
- If costs are keeping up with wage inflation, premiums will be in balance and changes to overall loss costs may not be necessary.
- In recent history, costs have been increasing at a slower pace than wages, resulting in decreases in loss costs.

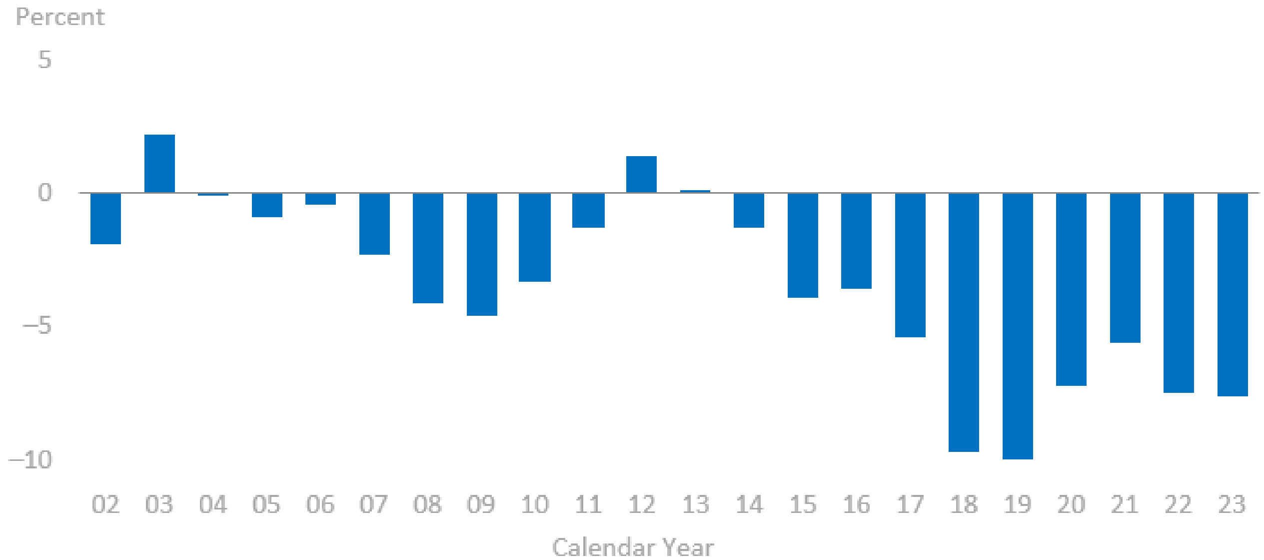
Why are workers compensation bureau loss costs decreasing?

The explanation behind decreasing bureau loss costs is mostly due to the inflationary exposure base (payroll) used to derive workers compensation insurance premium, combined with continued declines in claim frequency. Changes in claim severity in recent years have been moderate when compared to wage growth, contributing to the more pronounced decreases.

Frequency is a measure of the number of claims per premium dollars, while severity is a measure of the average cost per claim. Since 2002, the average bureau premium level has generally been decreasing—with only a few years seeing small increases.

Exhibit I: Change in Average Bureau Premium Level

Weighted by Effective Date



Sources: NCCI; weights are based on NAIC's Annual Statement Statutory Page 14
Values reflect changes in average premium levels between years, based on approved changes in advisory rates, loss costs, assigned risk rates, and rating values. Includes all states where NCCI provides ratemaking services.[1]

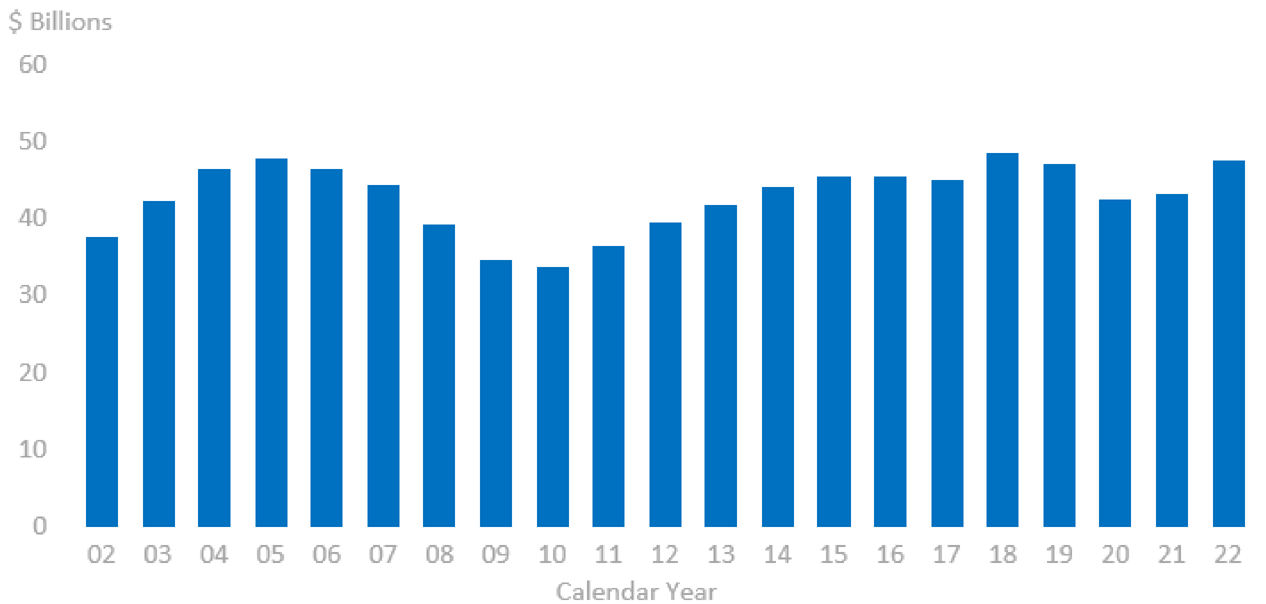
[1] As NV and WV joined NCCI at different times, there are instances where this data is not included in all years of analysis. Due to the unique characteristics of the data, some analyses may show limited years for NV, TX and WV.

Before delving more into the reasoning for these decreases, it's worth noting that although bureau loss cost/rate level have been decreasing, **Exhibit II** shows that total workers compensation premium continues to mostly increase.

As previously stated, in its pure form, loss costs (without considering expenses) are the portion of premium allocated to provide for indemnity and medical costs within the workers compensation system. Recently, changes to payroll have more than offset the change to bureau level loss costs, resulting in overall increases in workers compensation premium. Note that periods of premium decline typically coincide with recessionary periods and their effects on employment. Specifically, the years 2007 to 2009 coincide with the Great Recession and 2020 aligns with the COVID-19 recession.

Exhibit II: Net Written Premium

Private Carriers and State Funds—All States



Source: NAIC's Annual Statement data.
The following states are included in the respective calendar years in which they operate as state funds: AZ, CA, CO, HI, ID, KY, LA, MD, MO, MT, NM, OK, OR, RI, TX, and UT.

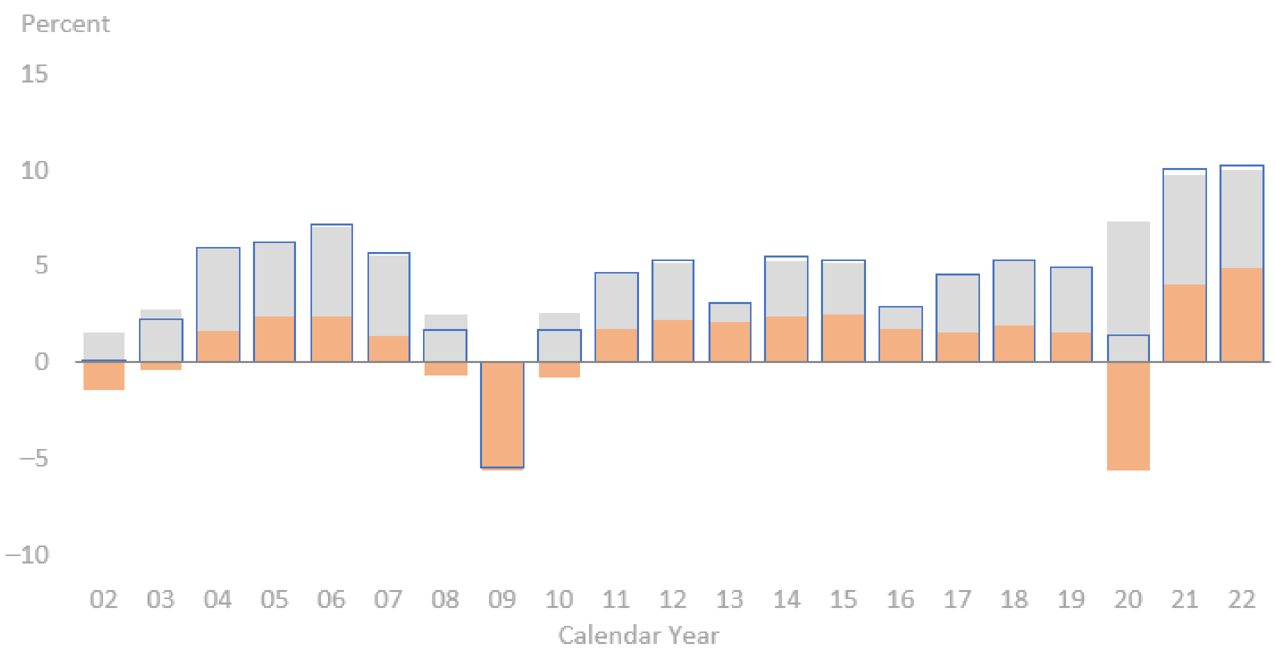
What factors contribute to the increase in workers compensation premiums?

Payroll as the exposure base for workers compensation premium is inflation sensitive and usually increases from year to year. The growth in payroll has offset some of the decreases in bureau loss costs/rates and has contributed to increases in workers compensation premiums. That is, loss cost/rate decreases put downward pressure on premium, but payroll growth has the opposite impact—such that the net effect may result in premium growth despite loss cost/rate decreases.

The combined effect of wages and employment plays a vital role in payroll increases as shown in **Exhibit III**:

1. Average weekly wage (AWW) is one component of payroll. Because wages are inflation sensitive, average weekly wages typically increase annually. In the years leading up to the COVID pandemic, annual wage growth averaged around 3% to 4%. After the pandemic, wages increased substantially in 2020, 2021 and 2022.
2. Employment is another factor that generally contributes to the growth in payroll. Over the last few decades, employment increases have averaged about 2.5% per year. Like wages, United States employment has generally increased over time except for periods of economic downturns such as during the Great Recession and the COVID pandemic.

Exhibit III: Change in Payroll, Average Weekly Wage, and Employment



Sources: US Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages (QCEW) program; NCCI. Total Private Industry, 2001–2022. Includes all states where NCCI provides ratemaking services.

What factors affect changes in loss costs?

The interaction between the average weekly wage, frequency and severity are some of the factors affecting changes in loss costs.

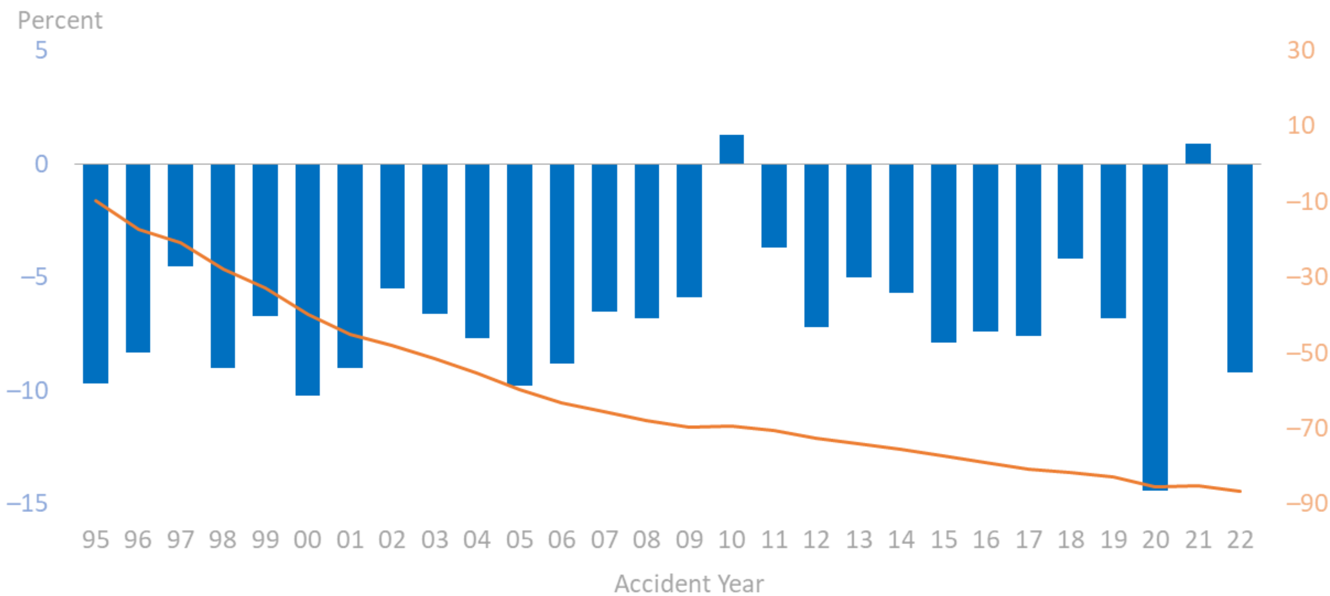
The goal of the ratemaking process is to have sufficient premium to cover costs. One way to measure this objective is to ensure the portion of premium allocated to covering losses equals the losses themselves (loss costs). In other words, losses, divided by premium allocated to losses, is equal to one. Because workers compensation premium uses payroll as the exposure base, premium is likely to increase over time as average weekly wages grow. Also:

- When costs outpace wage inflation, loss cost increases are generally warranted to keep premium and losses in balance.
- If costs are keeping up with wage inflation, premiums will be in balance and changes to overall loss costs may not be necessary.
- In recent history, costs have been increasing at a slower pace than wages, resulting in decreases in loss costs.

Naturally, the frequency of claims is a major driver of workers compensation costs and has been decreasing over a long period. With claim frequency continuing its downward trend and medical costs remaining under control, payroll increases work together with decreases in frequency to drive loss costs down.

Exhibit IV: Change in Lost-Time Claim Frequency

Percent change and cumulative change in Claims per $1M Pure Premium



2010–2011 and 2019–2022 are adjusted to reflect the impact of changes in audit activity.
Source: NCCI's Financial Call data, developed to ultimate, premium adjusted to voluntary pure premium level, excludes high-deductible policies; based on data through 12/31/2022; excludes COVID-19 claims. Includes all states where NCCI provides ratemaking services; NV is excluded through 2001, TX is excluded through 2006, and WV is excluded through 2011.

Why is frequency declining?

The workers compensation system has benefited from continued automation with the introduction of more advanced safety technologies in the workplace. Some risky tasks that were formerly completed manually are now automated, which has the effect of reducing the risk of workplace injuries. Furthermore, there has been an increased emphasis on loss prevention, with employers implementing safety programs that address potential hazards aimed at reducing frequency of workplace injuries.

NCCI's article about changing workforce demographics and workplace injury, Insights-WorkforceDemographics.pdf (ncci.com), highlights key findings as to why claim frequency has fallen almost every year for over two decades as shown in **Exhibit IV.** One key takeaway from the paper is that frequency declines are mostly driven by lower incidence rates for virtually every type of worker.

While claim frequency has shown a persistent decline over many years, this long term-pattern is interrupted from time to time with increases in claim frequency. One such instance occurred in 2010 after the Great Recession and a slight increase in 2021 after the significant decrease in frequency in 2020. Following the peak of the COVID pandemic, with more employees working from home in various occupations, claim frequency reverted to its long-term declining pattern.

What changes are observed in severity?

Workers compensation average claim costs generally increase; however, in more recent years, these costs have not been increasing at the same pace as wages. Many factors can influence average claim costs, including price of services, utilization of services, safety training programs, loss control measures and the mix of businesses. Prior to 2009, claim severity increases balanced frequency declines and left most of the loss cost decreases to be a function of the increase in average wages. Since 2009, however, claim costs have flattened. This flattening of claim costs has contributed to steeper decreases in the bureau premium level.

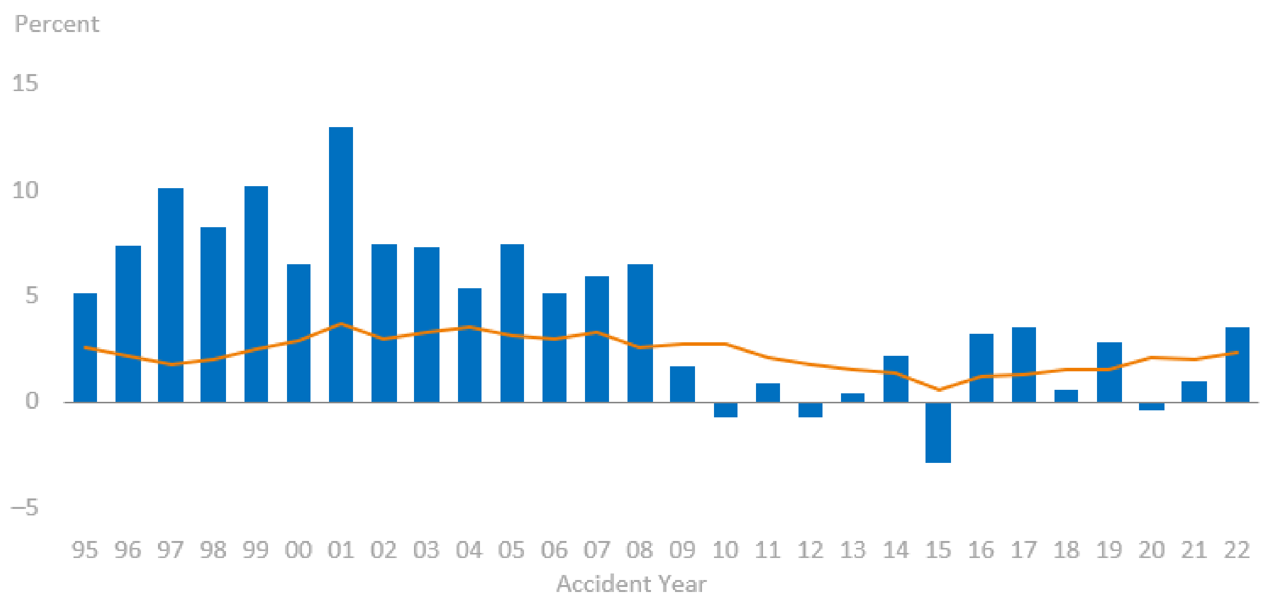
Another important contributing factor to severity trends is the relative frequency of large claims. NCCI research, [Large Claims Deconstructed (ncci.com)] has shown that the relative frequency of claims exceeding $1 million has been falling at a rate of 3% per year since 2002. This decline is in part driven by continued decreases in the relative frequency of large claims for degenerative disc disorders and pain, along with soft tissue large claims, to the tune of 11% per year over the past decade.

Let's examine the drivers of medical and indemnity severity. Starting with medical severity, **Exhibit V** shows that the trend has shifted after 2008. On a countrywide basis, medical services make up almost 60% of benefit costs. Medical severity changes have been moderate for many reasons, including:

- The implementation of and structural changes in medical fee schedules
- The implementation of drug formularies
- Reining in opioid use
- A reduction in major surgery
- Changes in rates of hospitalization

Exhibit V: Change in Average Medical Lost-Time Claim Severity

Percent Change in Average Cost per Case vs. Personal Healthcare Index (PHC)



Sources: NCCI's Financial Call data, developed to ultimate, excludes high-deductible policies; based on data through 12/31/2022; excludes COVID-19 claims. Values displayed reflect the methodology underlying the most recent rate/loss cost filing. Includes all states where NCCI provides ratemaking services; NV is excluded through 2003, TX is excluded through 2008, and WV is excluded through 2012. PHC Chain-Weighted Price Index: 1994–2022 Centers for Medicare & Medicaid Services (CMS). The PHC is a unique combination of multiple indices that helps paint a more complete picture of the price changes of personal healthcare. The composition of the index is a set of medical services that more closely mirror medical services typical in workers compensation.

Medical fee schedules continue to limit cost increases in the workers compensation system. In addition, the decreasing number of emergency department visits and inpatient admissions per claim, and changes in dispensing patterns from brand-name drugs to generics all help moderate the growth rate of medical severity. NCCI closely monitors medical price indices and reviews medical fee schedule changes diligently.

Our research indicates that medical fee schedules have likely contributed to the moderate changes in medical severity. Moreover, from 1995 to 2008, medical inflation based on the personal healthcare index was about 3%, compared to 1% to 2% after 2008—this decrease in the general medical inflation rate may also contribute to lower inflation in WC medical costs.

From 1995 to 2008, medical severity changes averaged around 7.5% per year. Since 2009, these changes have averaged about 1% per year. In recent years, hospital inpatient admissions have decreased every year. Most hospital admissions are for major surgeries. Whether these surgeries are taking place in a less expansive outpatient setting or not at all is a research topic that NCCI is currently addressing. Over the past decade, emergency department visits per claim have also decreased. The use of formularies typically facilitates decreased use of opioids and the use of generic drug equivalents, both of which have an impact on pharmacy costs.

The decrease in opioid utilization in workers compensation has two major impacts:

1. A direct impact on pharmacy costs
2. An impact on future claim liabilities

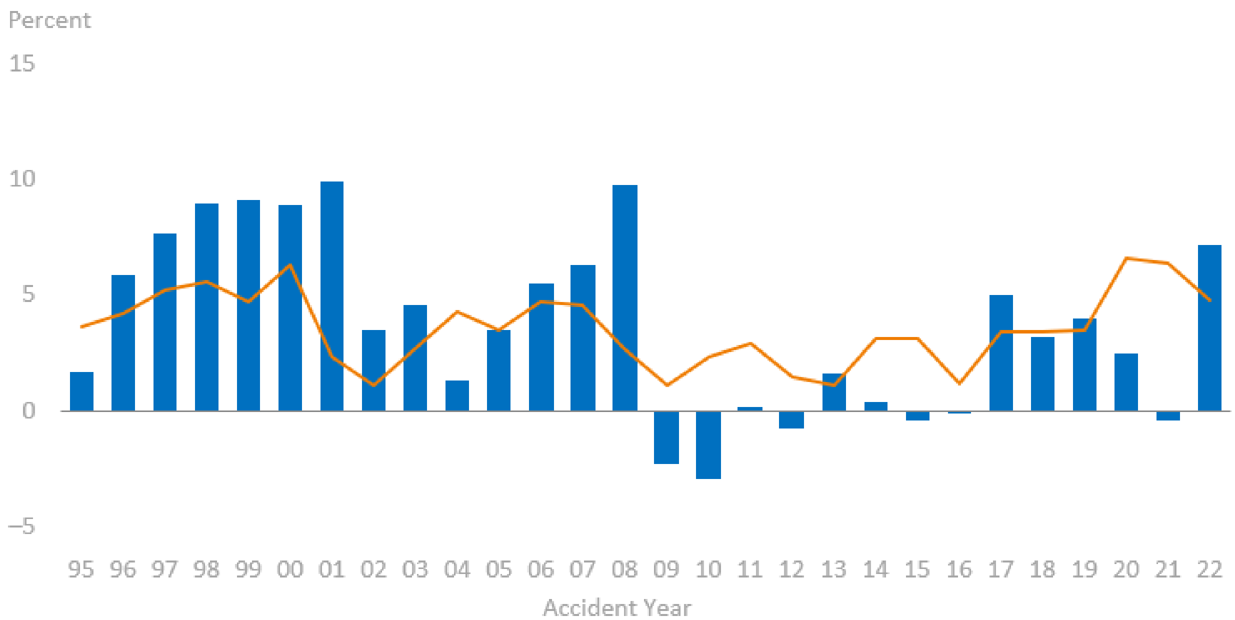
These changes both have implications for claim severity. For pharmacy costs, the cost per claim has dropped by more than 20% since 2012. Furthermore, fewer opioids could mean fewer workers becoming reliant on these drugs, which could lead to better patient outcomes and ultimately more controlled costs.

Shifting to the indemnity side, indemnity benefits are intended as wage replacement for injured workers. As such, the expectation is that indemnity severity changes should align relatively closely with wage inflation. As previously mentioned, severity can also be influenced by the size of claims. **Exhibit VI** displays indemnity severity changes with several time periods that are worth reflecting upon:

- From 1995 to 2001, indemnity severity grew at a much faster rate than wages. Some of that growth was explained through NCCI's research showing that small lost-time claims fell out of the system during that time faster than larger claims, putting upward pressure on indemnity severity.
- From 2002 to 2007, the indemnity growth rates were almost in lock step with average weekly wages.
- Severity growth increased sharply in 2008 and declined in 2009, coinciding with the Great Recession.
- Coming out of the Great Recession, from 2010 to 2016, wages continued to grow while changes in indemnity severity were small. The average cost of larger lost-time claims (those above $50,000) decreased at a faster pace than that of smaller claims, driving the average indemnity severity down.
- Since 2017, indemnity severity has mostly tracked wage inflation.

Exhibit VI: Change in Average Indemnity Claim Severity

Percent Change in Average Cost per Case vs. Average Weekly Wage

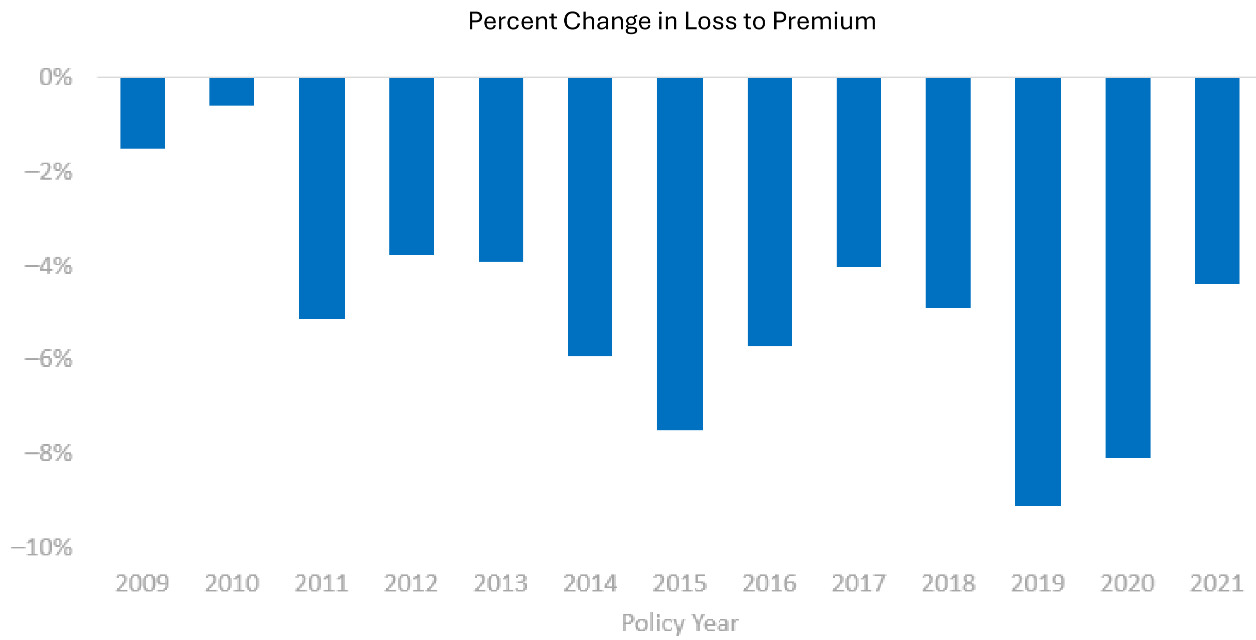


Sources: NCCI's Financial Call data, developed to ultimate, excludes high-deductible policies; based on data through 12/31/2022; excludes COVID-19 claims. Values displayed reflect the methodology underlying the most recent rate/loss cost filing. Includes all states where NCCI provides ratemaking services; NV is excluded through 2003, TX is excluded through 2008, and WV is excluded through 2012. US Average Weekly Wage: 1994–2007, 2012–2019, and 2022 Quarterly Census of Employment and Wages (QCEW), US Bureau of Labor Statistics (BLS); 2008–2011 and 2020–2021 NCCI and QCEW.

While claim frequency and severity are reviewed separately in order to observe any changes in each component, the combined impact of frequency and severity yields medical and indemnity loss ratios as shown in **Exhibits VII and VIII**. Loss ratios are calculated by dividing losses over premium; that is, the portion of premium associated with losses.

If we zoom in on Policy Years 2009 and forward, we see consistent decreases in both medical and indemnity loss ratios, with steeper decreases after 2010. Ultimately, the decline in loss ratios is what has been driving the observed decreases in bureau premium level over this period. These decreases are also consistent and similar in magnitude across job sectors.

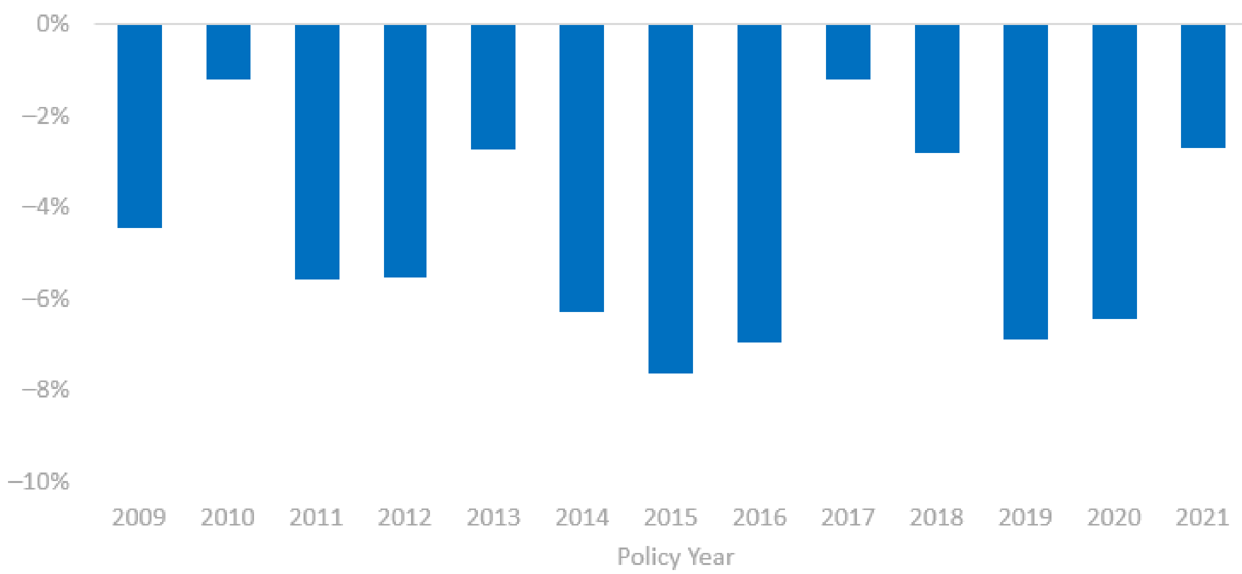
Exhibit VII: Change in Average Medical Loss Ratio



Source: NCCI's Financial Call data, developed to ultimate, excludes high-deductible policies; based on data through 12/31/2022; excludes COVID-19 claims. Premium adjusted to the current voluntary pure premium level. Losses are based on an average of paid and paid + case losses. Includes all states where NCCI provides ratemaking services; WV is excluded through 2012.

Exhibit VIII: Change in Average Indemnity Loss Ratio

Percent Change in Loss to Premium



Source: NCCI's Financial Call data, developed to ultimate, excludes high-deductible policies; based on data through 12/31/2022; excludes COVID-19 claims. Premium adjusted to the current voluntary pure premium level. Losses are based on an average of paid and paid + case losses. Includes all states where NCCI provides ratemaking services; WV is excluded through 2012.

Why are bureau level decreases more pronounced since 2017?

There's continued improvement in WC experience driving the loss cost changes. As a result, a key component in determining overall rate changes is the loss ratio trend used to project historical loss ratios to the prospective period.

To estimate the expected average annual percentage changes in loss ratio trends, exponential curves are fit to the historical data points. Consideration in the loss ratio trend factor selections include a review of loss ratio patterns observed over an extended period, along with other pertinent considerations including:

- Changes in system benefits and administration
- The economic environment
- The credibility of state data
- Prior trend approach and selection

The moderated changes in severity were a new phenomenon starting in 2009. As frequency continued to decrease and severity moderated, it took a few years to understand and have full confidence in the reported data coming out of the Great Recession, which indicated continued improved experience and more negative trends.[2] Furthermore, the historical policy years used to project loss costs take a few years to mature. These two factors contributed to more modest loss ratio trend factor selections.

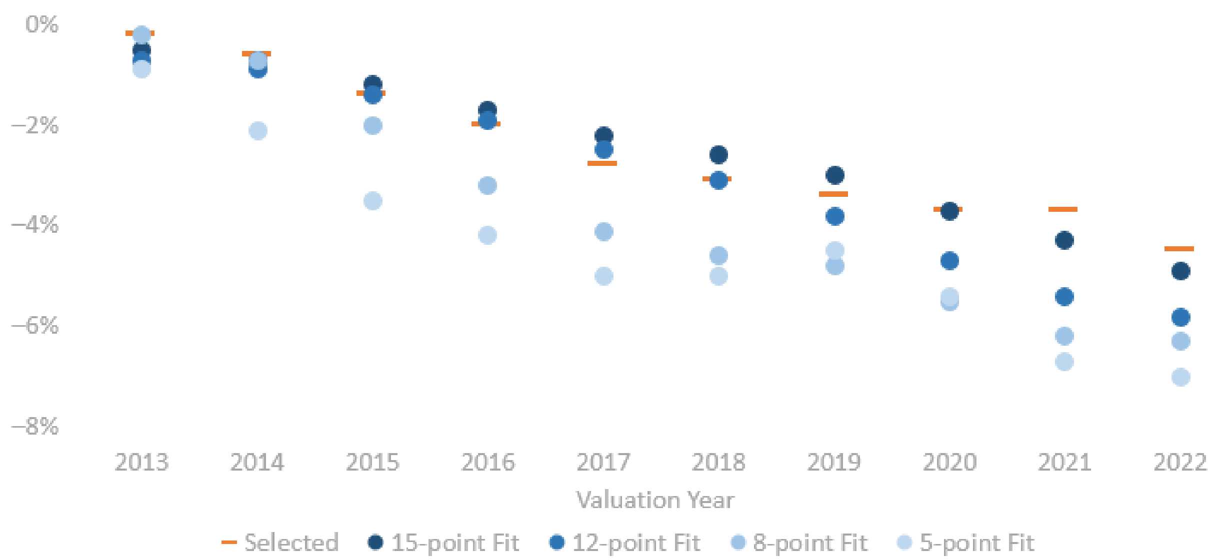
As more data was reported, the more recent loss ratio trends continued to decrease, highlighting the need to lower the selected loss ratio trends to be more reflective of the new environment.

[2] Appendix A provides a high-level overview of the ratemaking process, including defining negative trends.

Exhibits IX and X show exponential loss ratio trend projections based on fits of various lengths for the last 10 filings, along with the average countrywide selections. The COVID pandemic came with many uncertainties and challenges related to the predictiveness of the data from this period. As the data for 2020 was initially reported and evaluated, cautionary measures were employed to ensure that consideration was given to the uncertainty of the initial look at the data. There was also uncertainty around how long the COVID recession conditions would persist. These varied by state due to regional differences in the pandemic impact and response. As such, loss ratio trend selections reflect a longer-term view.

Exhibit IX: Annual Medical Loss Ratio Trends

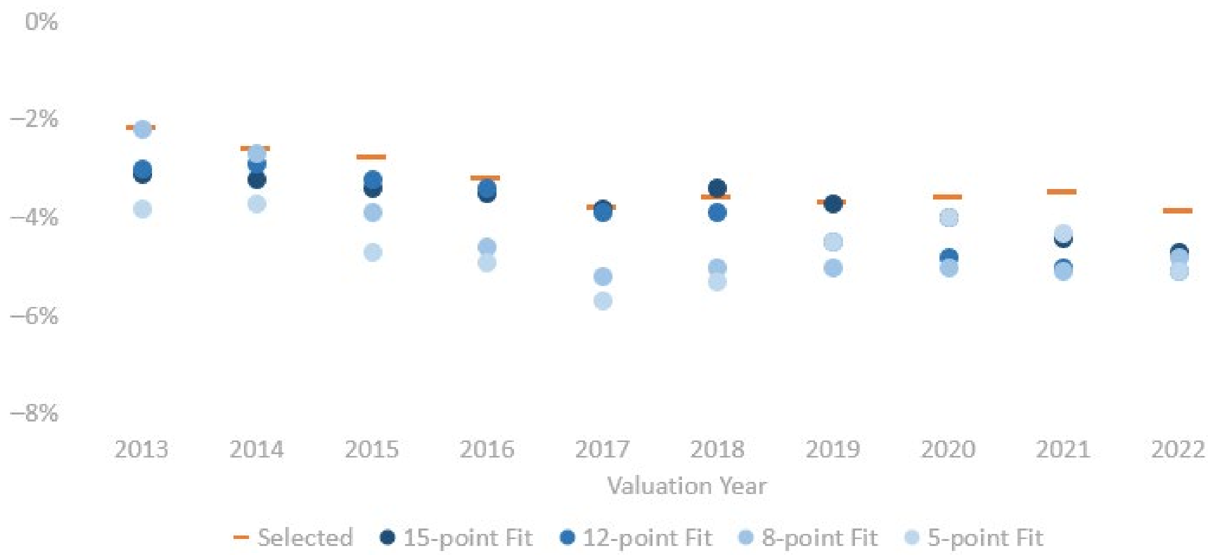
Loss to Premium Exponential Trend Analysis and Annual Selected Trend



Source: NCCI's Financial Call data, developed to ultimate, excludes high-deductible policies; based on data through 12/31/2022; excludes COVID-19 claims. Premium adjusted to the current voluntary pure premium level. Losses are based on an average of paid and paid + case losses. Includes all states where NCCI provides ratemaking services; NV is excluded through 2003, TX is excluded through 2007, and WV is excluded through 2012.

Exhibit X: Annual Indemnity Loss Ratio Trends

Loss to Premium Exponential Trend Analysis and Annual Selected Trend



Source: NCCI's Financial Call data, developed to ultimate, excludes high-deductible policies; based on data through 12/31/2022; excludes COVID-19 claims. Premium adjusted to the current voluntary pure premium level. Losses are based on an average of paid and paid + case losses. Includes all states where NCCI provides ratemaking services; NV is excluded through 2003, TX is excluded through 2007, and WV is excluded through 2012.

Did the workers compensation system change after COVID?

In general, WC experience improved even more after the COVID pandemic. In most states, 2020 loss ratios continued the decreasing patterns observed in previous years. Furthermore, the loss experience in 2021 and 2022 has demonstrated continued improvement. This is driven in part by the rebounding economy and the acceleration in wage growth in recent years.

The recent improvement in experience is also likely influenced by various pandemic-related factors. Some of these effects may have led to lasting improvements in workplace safety, such as the shift to remote work and reduced business travel. Other pandemic-related effects that are expected to persist into the future include shifting job duties, many of which have reduced person-to-person interaction. Additionally, recent wage increases have significantly outpaced the rate of medical inflation within the workers compensation system.

CONCLUSIONS: ARE THE DECREASES IN BUREAU PREMIUM LEVEL EXPECTED TO CONTINUE?

NCCI is closely monitoring the different components discussed above and characteristics that are likely to influence changes in these factors. Medical inflation continues to be a top concern for many industry leaders. Using more recent transaction data, factors such as shifts in medical services, among others, are being carefully monitored and evaluated to better understand how the pandemic could have impacted costs. We know that disruptions can arise, and NCCI is diligently monitoring the environment for signs of change.

NCCI is committed to evaluating any early signs of shifts or changes to ensure they are accounted for in the ratemaking process.

ACKNOWLEDGEMENTS

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APPENDIX: HIGH LEVEL SUMMARY OF THE RATEMAKING PROCESS[3]

Premiums, losses, claim counts and expense data are reported to NCCI annually by carriers writing workers compensation insurance. Policy year (PY) 2021 is the latest full year reported as of 12/31/2022 because annual policies effective on 12/31/2021 would expire on 12/31/2022. Depending on the size of the state, NCCI uses the latest two to five reported PY loss ratios as experience periods to project future changes in the overall loss cost/rate. For example, in projecting the 2024 loss costs/rates, PY 2017 through 2021 were potentially used as experience periods. Most states use either two or three PYs as the experience period to balance stability and responsiveness. For credibility considerations, states with smaller premium volume use four to five years as their experience period in which to project future loss cost/rate changes.

In the ratemaking process, the reported data is adjusted for several components before projecting future loss cost/rate changes.

1. Experience period is the number of historical loss ratio years used in projecting a future loss cost/rate change. Loss ratios are losses divided by premium.
2. Development factors are applied to the reported data to calculate ultimate losses and premium. Although initial policy information is reported for the historical years, the workers compensation line of business is long tailed, and the data won't be fully matured for many years. Therefore, the reported data is adjusted to account for additional payments and audit premiums that are expected in the future to bring losses and premium to an ultimate level. A review of how premiums and losses have changed in the past is used to derive these projections.
3. Benefit/premium on-level factors are also used to adjust the reported data for benefits and loss cost/rate changes that were approved but may not be reflected in the reported data. This ensures the latest information is used in projecting future changes.
4. Loss ratio trend factors are applied as a last step in the process. Trend factors are applied to bridge the gap between the historical experience period and the loss cost effective period. This is necessary because the relationship between losses and premium tends to change over time. Wages and benefits usually move in the same direction. However, they don't always change by the same amount. Trend factors measure anticipated changes in the amount of indemnity and medical costs as compared with anticipated changes in the amount of workers' wages.

   For example, if costs are expected to grow faster than wages, this will put upward pressure on future loss ratios. Therefore, a trend factor greater than zero is indicated. Conversely, if wages are expected to grow faster than benefit costs, loss ratios will show a decreasing pattern. Therefore, a trend factor less than zero is indicated.

   Over the past few years, loss ratio trend factors have been negative due to the continued decline in frequency coupled with moderated severity changes. This means increases in wages are currently outpacing increases in costs.

[3] Learning Center (ncci.com) provides more detailed information on Workers Compensation Ratemaking.